

CLAIMS

1. A transparent, especially glass, substrate (10) having at least one functional element (20) on one face and an antireflection coating (11) on the opposite face, said coating being made from a stack of thin dielectric layers having alternating high and low refractive indices, characterized in that the antireflection coating is used as abrasion-resistant antiscratch coating.
2. The transparent substrate as claimed in claim 1, characterized in that the abrasion-resistant antiscratch coating formed by the antireflection coating (11) has a resistance of at least 3H and with an abrasion resistance such that the haze of the substrate that may be caused remains less than 1.5%.
3. The substrate as claimed in claim 1, characterized in that the multilayer antireflection coating is deposited on the substrate before the functional element is deposited.
4. The substrate as claimed in one of claims 1 to 3, characterized in that the multilayer stack is based on Si_3N_4 or SnO_2 , and SiO_2 .
5. The substrate as claimed in one of claims 1 to 4, characterized in that the stack comprises, in succession:
 - a high-index first layer (c1) having a refractive index n_1 between 1.8 and 2.2 and a geometrical thickness e_1 between 5 and 50 nm;
 - a low-index second layer (c2) having a refractive index n_2 between 1.35 and 1.65 and a geometrical thickness e_2 between 5 and 50 nm;
 - a high-index third layer (c3) having a refractive index n_3 between 1.8 and 2.2 and a

geometrical thickness e_3 between 70 and 120 nm;
and

→ a low-index fourth layer (c4) having a
refractive index n_4 between 1.35 and 1.65 and a
geometrical thickness e_4 of at least 80 nm.

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6. The substrate as claimed in claim 5, characterized
in that the stack is as follows: Si_3N_4 / SiO_2 /
 Si_3N_4 / SiO_2 .

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7. The substrate as claimed in claim 1, characterized
in that the functional element (20) is a metallic
electromagnetic shielding element.

15 8. The substrate as claimed in claim 7, characterized
in that the functional element (20) consists of at
least one conducting metal layer.

20 9. The substrate as claimed in claim 7, characterized
in that the functional element (20) consists of a
stack of thin layers including at least two silver
layers.

25 10. The substrate as claimed in claim 8, characterized
in that the multilayer stack has the following
sequence:

Si_3N_4 / ZnO / Ag / Ti / Si_3N_4 / ZnO / Ag / Ti / ZnO / Si_3N_4 .

30 11. The substrate as claimed in claim 7, characterized
in that the functional element (20) consists of a
network of wires in the form of a grid.

35 12. The substrate as claimed in claim 7, characterized
in that the functional element (20) consists of
the combination of a stack of silver-based thin
layers and a network of wires in the form of a
grid.

13. The substrate as claimed in claim 7, characterized in that the functional element (20) is deposited directly on the substrate (10).
- 5 14. The substrate as claimed in claim 7, characterized in that the functional element (20) is deposited on a plastic film bonded to the substrate (10).
- 10 15. The substrate as claimed in claim 7, characterized in that the functional element (20) is laminated between two plastic films, one of which is bonded to the substrate (10) whereas the other is bonded to another substrate (10a).
- 15 16. The substrate as claimed in claim 7, characterized in that the functional element (20) is combined with a second functional element (21) made of an antireflection coating.
- 20 17. The substrate as claimed in claim 16, characterized in that the second functional element (21) is an antireflection multilayer stack (21b).
- 25 18. The substrate as claimed in claim 16, characterized in that the second functional element (21) is an adhesive antireflection film (21a).
- 30 19. The substrate as claimed in any one of the preceding claims, characterized in that the substrate is made of untoughened glass.
- 35 20. The application of the substrate as claimed in any one of the preceding claims to the manufacture of glazing or of filters for display screens.
21. The application as claimed in claim 20 for plasma screens.